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| **Summary of Findings** | **Implementations and Recommendations** |
| **Finding 1: Most classroom texts were short texts created by the teacher** Working from an assumption that texts should be at the heart of literacy instruction, we analysed the frequency with which texts were used and what the features of those texts were. We took a reasonably broad view of texts and included all texts with any written words, including instructions, diagrams with labels or headings and symbolic expressions that included at least one word, but did not count texts that had no words whatsoever and were therefore solely oral or visual.  We observed a total of 91 texts delivered to students to read overall. Overwhelmingly, the texts being used in classrooms were created by the teacher, often as notes or worksheets, or modelled examples on the whiteboard. Teacher created texts were more evident in mathematics (93% of cases, compared with 72% for science). The whiteboard was the most common way texts were delivered (82% of texts in mathematics and 40% of texts in science) while the second most common form of delivery was via photocopied text resource (11% in mathematics and 32% in science). Published print materials were seldom used in either subject (2% of texts in mathematics and 6% in science).  Texts were predominantly short, with fewer than 10 words. In mathematics classes, the majority of texts contained fewer than 10 words (64%) and these were often one or two word instructions (eg, “simplify” followed by a series of equations). In science classes the highest proportion of texts contained between 11–50 words (38%), followed by fewer than 10 (26%), 51–100 (16%), 101–300 (12%) and 301–600 (2%).  Unsurprisingly, in mathematics classes the highest proportions of texts were mainly number based (41%) although there was also a relatively high proportion of running written text (32%). These were often short-sentence, instruction-based text (eg, “calculate the angle”). There were few examples of the extended contextualised word-based problems typical of NCEA mathematics assessments.  There was very little use of any real world texts or electronic or internet text, and very little evidence of students learning to use texts in ways that are valued by the discipline (eg, reading or writing ‘like a scientist’) or working across multiple texts.   **Finding 2: The teachers know and teach much more about subject specific vocabulary than they do about other aspects of literacy and language** We analysed each three-minute block to identify whether any literacy instruction occurred and what the focus of that instruction was. In mathematics classes, the total number of instances of literacy instruction was fewer (observed in 38% of blocks) than the total number of instances of literacy instruction in science classes (observed in 69% of blocks).  Vocabulary knowledge was clearly the dominant subject literacy concern of teachers and was observed in 26% of blocks in mathematics and 61% of blocks in science.  Interviews and SLPCK responses demonstrated that teachers considered knowledge of vocabulary as an important subject-specific literacy goal. In particular, knowledge of challenging or conceptually important subject-specific vocabulary was a strong theme that emerged from both interviews and the SLPCK Tool.  There was less evidence that teachers discriminated between receptive and productive vocabulary learning, and teachers did not always seem to distinguish ‘to understand’ subject vocabulary from ‘to use’ that vocabulary. There was also less evidence that teachers had strategies for identifying which words would be most productive or catalytic to teach, or were aware of everyday words that had specialised uses.  Instruction about text structure or audience and purpose was rarely observed, and no instance of instruction about language resources, such as expected level of writing or sentence structure, was observed at all.   **Finding 3: Lessons were characterised by whole class question and answer (Q & A) sessions, followed by individual work where teachers rove and assist** The teachers in our study predominantly used whole-class sessions and engaged students in Q & A sequences. Students also spent a large amount of time working individually, with teachers roving and assisting through brief exchanges. While natural discussion did occur between students who were supposed to be working alone, there were comparatively few instances of students working collaboratively in groups, except in Year 7, and in particular Year 7 mathematics, where students worked in ability groups, and participated in group interaction with the teacher.  Overall, there were no instances of teachers and students participating in extended discussions about the content of the texts, let alone aspects of literacy and language, other than those requiring short answer responses by students.  **Finding 4: Instruction in both subjects was largely undifferentiated, especially in Year 9 and 10 classrooms** Students in both subjects were undifferentiated for the majority of blocks observed, that is, they were working towards the same class objectives or learning intentions. Students in mathematics lessons spent 76% of observed blocks in undifferentiated activity in which all students were engaged in the same activity, and were working in ability-grouped activities for 24% of observed blocks, while students in science classes spent 98% of observed blocks in undifferentiated activity and only 2% of blocks working in ability-grouped activity. We observed no instance of differentiation to the level of individual students. Students in Year 7 classes were engaged in ability-grouped activities for a higher proportion of time (35%) than Year 9 (3%) and Year 11 classes (0%).  **Finding 5: Formative assessment mainly consisted of Q & A sessions or checking** Formative assessment is needed if teachers are to be able to effectively identify the learning needs, including the literacy and language needs, of their students and to monitor the effectiveness of their teaching in response to those needs. This is the vision of pedagogy articulated in the NZC through the ‘Teaching as Inquiry’ cycle (NZC, p. 35).  Teachers described their strategies for knowing whether students were achieving the teaching goals largely in terms of Q & A sessions, or roving to check whether students were getting the correct answers. Some conferencing was observed, largely at Year 11, and teachers at Year 7 identified ‘working with’ students and self-assessment techniques.  In general, the students in our study were able to identify the teacher’s goal for their learning, most often identifying words or concepts that the teacher wanted them to learn.  In the secondary context particularly, we saw few practices that might allow teachers or students to diagnose whether difficulties were literacy or content based, or to monitor or regulate literacy learning. No teacher at any level referred to a standardised measure of literacy achievement, such as asTTle reading or writing.  **Finding 6: There was little focus on developing students’ critical literacy or strategy use** One of the aspects of literacy instruction that we analysed was what we called ‘instructional depth’. Critical literacy is an explicit focus of the NZC, in terms of the key competencies, as well as in the learning areas, “for each area, students need specific help from their teachers as they learn … how to listen and read critically, assessing the value of what they hear and read” (NZC, p. 16). When literacy instruction was observed, instructional depth in both mathematics and science was dominated by practice (57% of literacy instruction observed in mathematics classes and 48% in science classes). In mathematics, the remaining categories were fairly evenly distributed between item teaching (14%), Activating Prior Knowledge (APK) (14%), strategy instruction (9%) and critical literacy (7%). In science classes, a relatively high proportion of literacy teaching was categorised as item teaching (31%), with lower proportions of APK (8%), strategy instruction (8%) and critical literacy (5%). | **1. Text use: students need opportunities to engage with text in ways that are valued by the disciplines and by the New Zealand Curriculum document** Having sufficient time to learn, and repeated opportunities to practice, is essential when learning any complex subject matter (Bransford, Brown, & Cocking, 2000) so, clearly, students need repeated opportunities to read, write, think about, and discuss the types of texts valued in science and mathematics if they are to become skilled users and producers of such texts. There is ample scope for more time spent engaged in reading texts for subject-specific purposes, and both gathering and applying content knowledge. We see as concerning the lack of alignment between the time and types of texts students actually encountered in class and those that the NZC implies would be important, and that students will encounter in NCEA, in the disciplines themselves, and in ‘real world’ contexts. We are not suggesting at all that written texts supplant other ways of teaching content or providing meaningful contexts, however  we are suggesting that written texts should be used more often for these two purposes.  **2. Textual knowledge: students need opportunities to develop knowledge of how important types of subject texts work** In the service of using texts in subject-specific ways, as effective readers and writers, students develop and use knowledge of how important types of subject texts work. Knowledge of how texts work consists of knowledge about audience and purpose, vocabulary, organisational features and language resources.  It is important that teachers also have this knowledge. They need to know this so they can diagnose reading and writing problems, employ appropriate teaching strategies to address these problems, and evaluate the effectiveness of these actions.  Our findings show that the teachers knew and taught much more about vocabulary than they did other features of literacy and language. There was little to no evidence that the teachers had deep knowledge about, or taught students about, other important aspects of texts such as audience and purpose, structure, or features of language at a sentence level. One explanation for why there was so little teaching about these aspects is that teachers do not know as much about these aspects at an explicit level as they do about vocabulary. Specifically, this study suggested that they might not know how gaps in students’ knowledge of these features might affect students’ ability to comprehend or produce written texts, how to diagnose such problems, and what instructional practices to employ.  While teachers need to know these features, and students need to develop such knowledge, we do not agree that teachers should, or need to, teach all of these features as a matter of course. For example, “Repeated studies have demonstrated that instruction in isolated grammar, decoding or comprehension skills may have little or no impact on students’ activity while actually reading” (Schoenbach, Greenleaf, Cziko & Hurwitz, 1999, p. 7). Rather, teachers need to know how these features (including, but not limited to, receptive, specialised vocabulary) may act as barriers to making or creating meaning from texts and how to diagnose and address problems identified through inquiry.  **3. Strategy learning: students need opportunities to develop a toolbox of cognitive strategies they can use flexibly to make and create meaning** There was very little evidence of strategy instruction in the classrooms we observed. The strategies that we think will be most pivotal for students to learn in mathematics and science are more specific to each subject’s texts and purposes and will be strategies that students can employ when features of those highly-specialised text forms become barriers to making and creating meaning. In science, for example, as well as hearing, learning and using vocabulary items, students might develop strategies for solving unfamiliar words they encounter by integrating morphological word level strategies with text level context based strategies.   **4. Pedagogy: students need opportunities to participate and contribute in rich literacy learning experiences** In the classes we observed, teachers of both science and mathematics frequently modelled, and often created texts to support this modelling. However, there was less evidence that teachers used grouping or extended discussion to build understandings. We would therefore argue for a greater balance of approach. We see at least two potentially valuable purposes in incorporating greater use of participatory or dialogic teaching approaches. The first is creating opportunities for greater support through co-constructive approaches. The second is to disrupt the traditional ‘Initiate, Respond, Evaluate’ (Mehan, 1979) classroom discourse pattern to build richer, more authentic and more cognitively-challenging discourse patterns.  **5. Critical literacy: students need opportunities to develop the kinds of critical literacy valued in the subject areas** Critical literacy is an explicit focus of the NZC, in terms of the key competencies, as well as in the learning areas. Critical literacy involves a shift away from ‘getting the correct answer’ to questioning the assumptions in texts, critiquing, and challenging. In our observations of teachers we saw no evidence of any instruction that could be characterised as critical literacy. We would therefore argue, from a position of instructional depth, that students need opportunities to engage with issues, ideas and concepts, to challenge and critique them as part of deep learning within their subject areas.   **6. Independence: students need opportunities to develop self-regulation (in reading and writing)** Alongside instructional support and instructional materials, students also have a vital role to play in their own learning. An environment that supports self-regulation requires that students participate in discussions and other learning tasks that focus on the learning. Teacher responses indicated that when students were faced with literacy difficulties, they supported students to solve the literacy issues. In order to foster self-regulation, however, students need to be able to develop strategies for independent solving. To do so, students need to know what literacy skills or strategies they are trying to develop. We therefore argue for strategies that develop students’ awareness of the literacy demands of their subject area, beyond knowing the meanings of words.  Bottom of Form |